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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,542	11/29/2005	Akira Usui	YAMA:109	6411
37013 7590 02/22/2008 ROSSI, KIMMS & McDOWELL LLP. P.O. BOX 826 ASHBURN, VA 20146-0826			EXAMINER PAUL, DISLER	
			ART UNIT 2615	PAPER NUMBER
			MAIL DATE 02/22/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/558,542	Applicant(s) USUI, AKIRA	
	Examiner Disler Paul	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: ____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :7/21/06,12/13/06,12/18/07,2/4/08.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eberbach (5,809,150) and Yanagawa et al. (US 5,233,664).

Re claim 1, Eberbach disclosed of the array speaker system constituted by arraying a plurality of speaker units, said array speaker system comprising: a means for inputting front-side channel signals for instructing reproduction of sound at a front side of a listener and rear-side channel signals for instructing reproduction of sound at a rear side of the listener (fig.1,3,5; col.6 line 16-30); and a means for driving the speaker units with respect to the rear-side channel signals in such a way that sound is reflected at least one sound reflection position such as a wall surface or a ceiling and is then applied with a prescribed delay value so as to form a sound beam reaching the rear-side of the listener (col.3 line 40-45, col.8 line 40-53, fig.7).

But, Eberbach fail to disclose of the means for driving the speaker units with weights using weight coefficients based on a Bessel function with respect to the front-side channel signals. However, Yanagawa et al. disclose of system with similar concept wherein the means for driving the speaker units with weights using weight coefficients based on a Bessel function with respect to the front-side channel signals (fig.1-3, col.1 line 55-65, col.2 line 5-12, col.7 line 30-65/with Bessel function) for the purpose of controlling the speaker directivity with wide range of frequencies. Thus, taking the combined teaching of Eberbach and Yanagawa et al. as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify Eberbach by incorporating the means for driving the speaker units with weights using weight coefficients based on a Bessel function with respect to the front-side channel signals for the purpose of controlling the speaker directivity with wide range of frequencies.

2. An array speaker system according to claim 1, which is constituted by a first array speaker arranged at a left side of a display and a second array speaker arranged at a right side of the display (fig.1,3,5 with display (22)).

3. An array speaker system according to claim 2, wherein the front-side channel signals are formed using a left channel signal, a right

channel signal, and a center channel signal, and the rear-side channel signals are formed using a surround left channel signal and a surround right channel signal (fig.1 wt (42,38,40) and (50,52)), and wherein in the first array speaker arranged at the left side of the display (fig.1,3 wt (34,46)), and the surround left channel signal is subjected to sound beam processing (fig.1, col.6 line 18-20, fig.7b, col.8 line 17-20/sound beam to have maximum direction toward wall wt delay), and wherein in the second array speaker arranged at the right side of the display (fig.1,3 wt (36,48)), and the surround right channel signal is subjected to sound beam processing (fig.1, col.6 line 18-20, fig.7b, col.8 line 17-20/sound beam to have maximum direction toward wall wt delay).

Wherein the combined teaching of Eberbach and Yanagawa et al. as a whole, further teach of the left channel signal and the center channel signal are subjected to weighting using the weight coefficients based on the Bessel function, the left channel signal and the center channel signal are subjected to weighting using the weight coefficients based on the Bessel function (see Yanagawa et al. with front channels with Bessel Function, fig.1,3).

4. An array speaker system according to claim 1, wherein a single array speaker is arranged in front of the listener, and wherein in the array speaker, a left channel signal, a right channel signal, and a

center channel signal, all of which form the front-side channel signals, are subjected to weighting using the weight coefficients based on the Bessel function (see claim 3 rejection above), and a surround left channel signal and a surround right channel signal, both of which form the rear-side channel signals, are subjected to sound beam processing (fig.1, col.6 line 18-20, fig.7b, col.8 line 17-20.

5. An array speaker system including an array speaker in which a plurality of speaker units are arrayed in a matrix manner, wherein a first audio signal for instructing reproduction of sound at a setup position of the array speaker is subjected to weighting using a weight coefficient based on a Bessel function so as to drive the speaker units, and wherein a second audio signal for instructing reproduction of sound at a specific position other than the setup position of the array speaker is subjected to delay processing so as to drive the speaker units in such a way that a sound beam reaching the specific position is formed (see claim 1 rejection).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP


VIVIAN CHEN
SUPERVISORY PATENT EXAMINER